



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,203	12/31/2003	Camille Borer	004640-042	6724
21839	7590	08/21/2006	EXAMINER	
BUCHANAN, INGERSOLL & ROONEY PC POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			SELLERS, ROBERT E	
			ART UNIT	PAPER NUMBER

1712

DATE MAILED: 08/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/748,203

Applicant(s)

BORER ET AL.

Examiner

Robert Sellers

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 21-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 21-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>July 12, 2006</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1712

1. The application has been transferred due to the departure of Examiner Jeffrey Robertson.
2. The insertion of the proper antecedent basis into claim 5 via the amendment filed June 26, 2006 overcomes the 35 U.S.C. 112, second paragraph rejection. The cancellation of claims 19 and 20 resolves the 35 U.S.C. 102(b) and (e) rejections over Berg et al. Patent No. 5,998,565; PCT Publication No. WO 97/45474, Aharoni Patent No. 5,480,944; Vicari et al. Patent No. 5,362,843 and Mhetar Patent No. 6,497,959.
3. The species of hyperbranched polymers designated as "Bolteron" on page 7, Example 3 and page 8, Example 7 of the specification would be more accurately named as "Boltorn" according to German Patent No. 10136911 (CAPLUS abstract) and Dairanich et al. Publication No. 2004/0260035 (page 4, paragraphs 39 and 41).

Further searches along with the Information Disclosure Statement filed July 12, 2006 have uncovered the following pertinent references which causes the rescinding of the indication of the allowability of claims 1-18, 21 and 22.

Art Unit: 1712

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-18 and 21-25 are rejected under 35 U.S.C. 102(a) as anticipated by German Patent No. 10136911.

4. The abstracts for the German patent set forth the melt mixing of a polyester and a hyperbranched polymer, cooling to form a solid, and conducting solid phase post condensation.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 and 21-25 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over CAPLUS accession no. 2003:330027 for the Polymer Engineering and Science article by Kil et al.

5. Kil et al. discloses the blending of polyethylene terephthalate (PET) and a hyperbranched polymer further subjected to solid-state polycondensation. Although the blending is not specified as melt-mixing as claimed, and the claimed step of cooling to a solid form is not explicitly recited, the blending of the polymers in the melt would be either be inherent as the only means of providing a miscible mixture or obvious in order to obtain a miscible mixture. The claimed cooling step to form a solid would be inherent prior to conducting solid-state polycondensation which can only occur with a solidified blend.

6. The German patent having a publication date of February 20, 2003 and the Kil et al. article with a publication date of 2003 antedates the filing date of the instant application of December 31, 2003. However, the submission of a certified translation of German priority application no. 101 32 928.8 filed July 3, 2001 would antedate these references if the subject matter of the priority application supports that claimed.

Claims 1-18 and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dairanieh et al. Publication No. 2004/0260035; the Macromolecules article by Jang et al., PCT Publication No. WO 01/74946 (PCT '946) and Sorensen et al. Patent No. 6,225,404 in view of Heighton et al. Patent No. 3,405,098; German Patent No. 4,226,737 (German '737); PCT Publication No. 94/01484 (PCT '484) and Rothe et al. Patent No. 4,064,112.

7. Dairanieh et al. (page 4, paragraphs 39, 41 and 50) shows the compounding of polyethylene terephthalate and up to 2 wt.% (page 3, lines 1-3) of a Boltorn H20 or H40 dendritic polyester (utilized in Examples 3 and 7 on pages 7 and 8, respectively, of the specification) by a twin-screw extruder further extruded into a sheet.

8. Jang et al. (page 1865, first column, Solution Blends) shows blends of hyperbranched polymers and polyethylene terephthalate.

9. PCT '946 (page 2, lines 18-20) reports the blending of the thermoplastic resin such as a polycarbonate, polyethylene terephthalate or polybutylene terephthalate (page 3, lines 13, 17 and 18) with from 0.1 to 5% by weight or a dendrimer (page 6, lines 12-13) and additives (page 6, lines 14-19) with a twin-screw extruder.

10. Sorensen et al. (col. 4, lines 1-4) epouses a combination of a thermoplastic polymer such as a poly(alkylene terephthalate) or polycarbonate (col. 7, lines 41 and 51), a hyperbranched polyester, additives (col. 12, lines 43-50) mixed by co-extrusion (col. 12, lines 54-57).

Art Unit: 1712

11. The claimed converting of the molten mixture to a solid form by cooling and conducting of solid phase post-condensation are not recited.

12. Heighton et al. (col. 2, lines 4-23) teaches the quenching of melted polyethylene terephthalate, crystallizing, grinding into particles and polymerizing by heating at from 200°C to 225°C in a continuous process (col. 3, lines 60-64) in order to lower the content of free carboxyl groups which controls degradation (col. 4, lines 10-19).

13. German '737 describes the production of a high molecular weight polyester by post-condensation to minimize side reactions leading to crosslinked, insoluble particles.

14. PCT '484 is directed to the crystallization of a polyester at temperatures of less than 145°C prior to solid phase post-condensation to reduce yellowing.

15. Rothe et al. (col. 2, lines 23-38) is drawn to the crystallization of a polyester at a temperature of from 230°C to 245°C (col. 2, lines 56-65) followed by solid state polycondensation within the same temperature range to prevent the sticking of the granulate during the solid state polycondensation.

16. It would have been obvious to subject the blends of polyethylene terephthalate and the minor amount of hyperbranched polymer of Dairanieh et al., Jang et al., PCT '946 and Sorensen et al. to the crystallization (instant claim 16 and solid phase post-condensation of Heighton et al., German '737, PCT '484 and Rothe et al. in order to lower the free carboxyl group level to control degradation, minimize side reactions leading to crosslinked, insoluble particles, reduce yellowing and prevent the sticking of the granulate during solid state polycondensation.

Claims 17 and 18 are rejected under 35 U.S.C. 102(a, b or e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dairanieh et al., Jang et al., PCT '946 or Sorensen et al.

17. The references are described hereinabove. Claims 17 and 18 are product-by-process claims. Since the combinations of polyethylene terephthalate and hyperbranched polymer of the references are the same or obvious over the claimed mixture, the claimed product is unpatentable even though prepared by the further process step of solid phase post-condensation (MPEP § 2113, "Product-by-Process Claims, Product-by-Process Claims are Not Limited to the Manipulations of the Recited Steps, Only the Structure Implied by the Steps," *In re Thorpe*, 227 USPQ 964, 966, Federal Circuit 1985).

18. The blend of the prior art is inherently the same as that claimed based on the equivalent polyethylene terephthalate and hyperbranched polymer components. The burden of proof shifts to applicants to provide evidence that the claimed blend differs from that of the prior art (*In re Fitzgerald*, 205 USPQ 594, CCPA 1980 and MPEP §§ 2112-2112.02).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

19. Duh Patent No. 4,238,593 and German Patent No. 1,729,158 also pertain to the solid state post-condensation of polyesters.

(571) 272-1093 (Fax No. (571) 273-8300)
rs 8/16/2006

Monday to Friday, 9:30 to 6:00



ROBERT E.L. SELLERS
PRIMARY EXAMINER